

Stress Analysis Report



Analyzed File:	gummy bear.ipt
Autodesk Inventor Version:	2016 (Build 200138000, 138)
Creation Date:	3/9/2016, 7:36 PM
Simulation Author:	kenalb
Summary:	

Project Info (iProperties)

Summary

Author kenalb

Project

Part Number	gummy bear
Designer	kenalb
Cost	\$0.00
Date Created	3/9/2016

Status

Design Status WorkInProgress

Physical

Material	candy
Density	0.114885 lbmass/in ³
Mass	0.00253651 lbmass
Area	1.03983 in ²
Volume	0.0220787 in ³
Center of Gravity	x=-0.0727173 in y=-0.0277153 in z=0.0251991 in

Note: Physical values could be different from Physical values used by FEA reported below.

Simulation:1

General objective and settings:

Design Objective	Single Point
Simulation Type	Static Analysis
Last Modification Date	3/9/2016, 7:33 PM
Detect and Eliminate Rigid Body Modes	No

Mesh settings:

Avg. Element Size (fraction of model diameter)	0.1
Min. Element Size (fraction of avg. size)	0.2
Grading Factor	1.5
Max. Turn Angle	60 deg
Create Curved Mesh Elements	Yes

Material(s)

Name	candy	
General	Mass Density	0.114885 lbmass/in ³
	Yield Strength	15954.2 psi
	Ultimate Tensile Strength	15954.2 psi

Stress	Young's Modulus	61957.2 ksi
	Poisson's Ratio	0.23 ul
	Shear Modulus	25185.9 ksi
Part Name(s)	gummy bear	

Operating conditions

Force:1

Load Type	Force
Magnitude	50.000 lbf
Vector X	0.000 lbf
Vector Y	0.000 lbf
Vector Z	-50.000 lbf

Selected Face(s)



Fixed Constraint:1

Constraint Type	Fixed Constraint
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Selected Face(s)



Results

Reaction Force and Moment on Constraints

Constraint Name	Reaction Force		Reaction Moment	
	Magnitude	Component (X,Y,Z)	Magnitude	Component (X,Y,Z)
Fixed Constraint:1	50 lbf	0 lbf	0.973709 lbf ft	-0.973709 lbf ft
		0 lbf		0 lbf
		50 lbf		0 lbf

Result Summary

Name	Minimum	Maximum
Volume	0.0220787 in ³	
Mass	0.00253651 lbmass	
Von Mises Stress	0.133727 ksi	51.1156 ksi
1st Principal Stress	-9.28629 ksi	52.5244 ksi
3rd Principal Stress	-56.5236 ksi	11.7267 ksi
Displacement	0 in	0.0005442 in
Safety Factor	0.312119 ul	15 ul

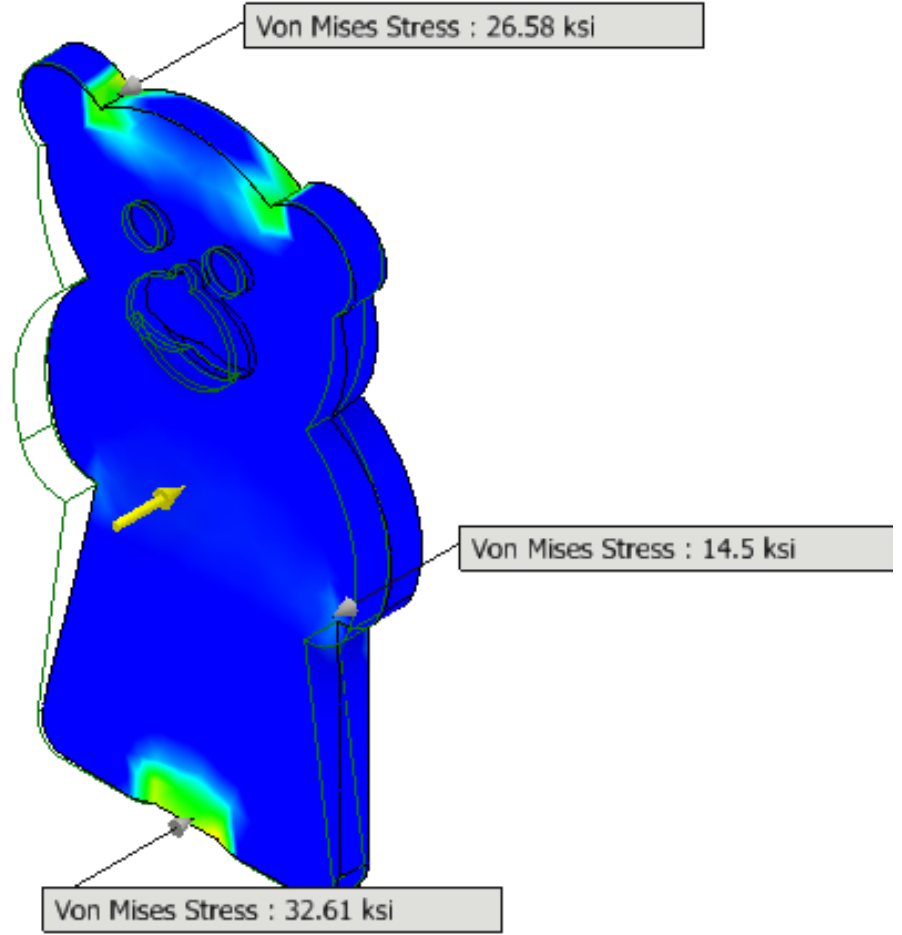
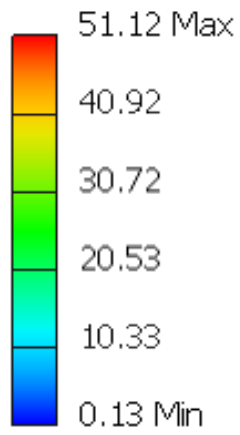
Figures

Von Mises Stress

Type: Von Mises Stress

Unit: ksi

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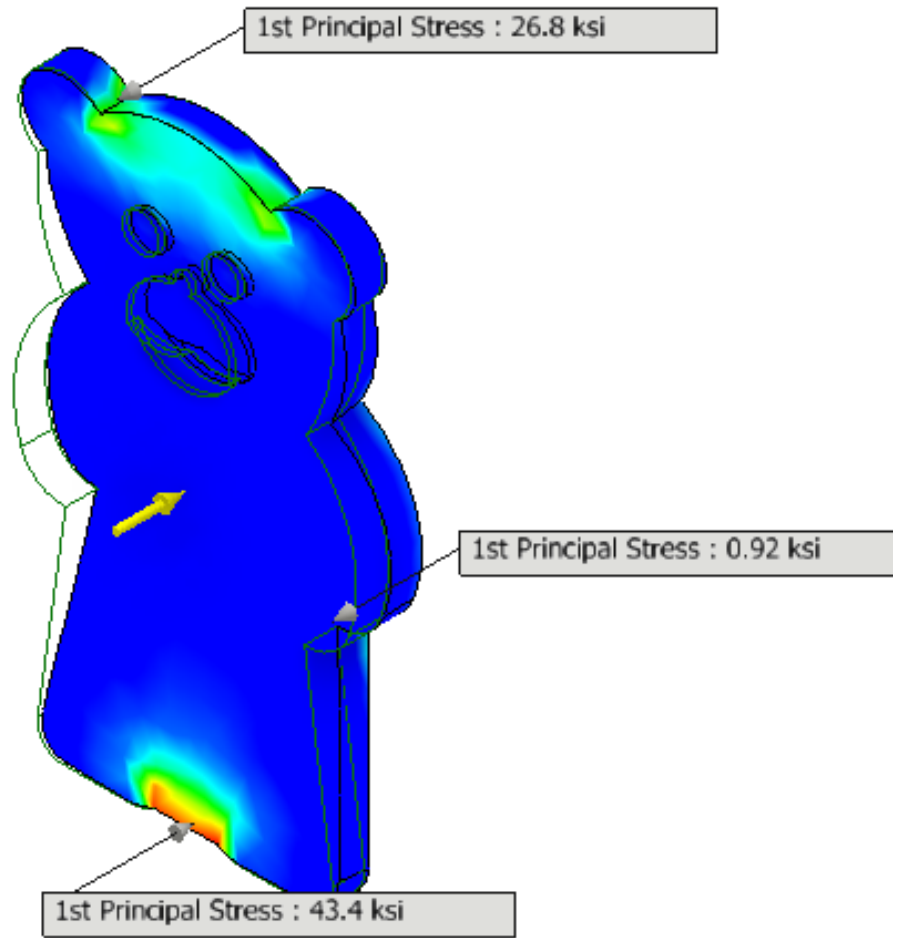
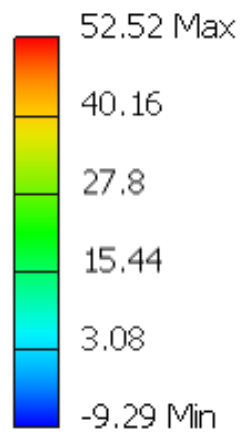


☐ 1st Principal Stress

Type: 1st Principal Stress

Unit: ksi

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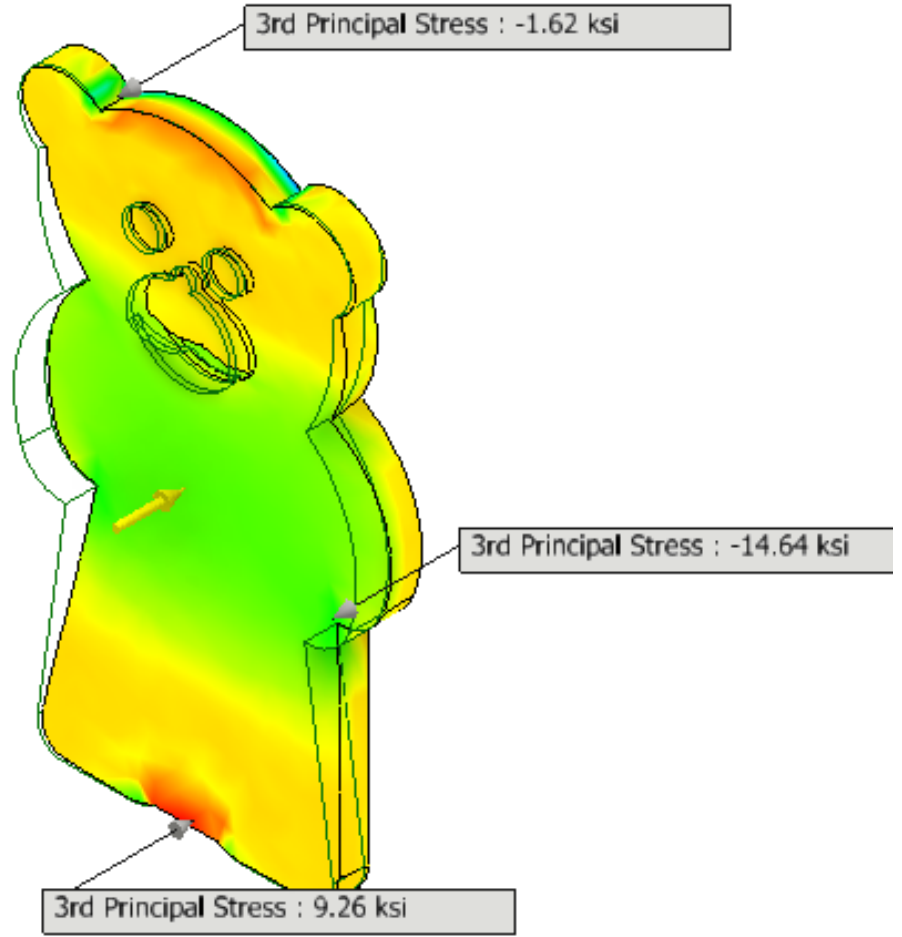
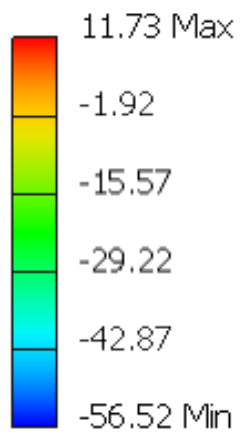


☐ 3rd Principal Stress

Type: 3rd Principal Stress

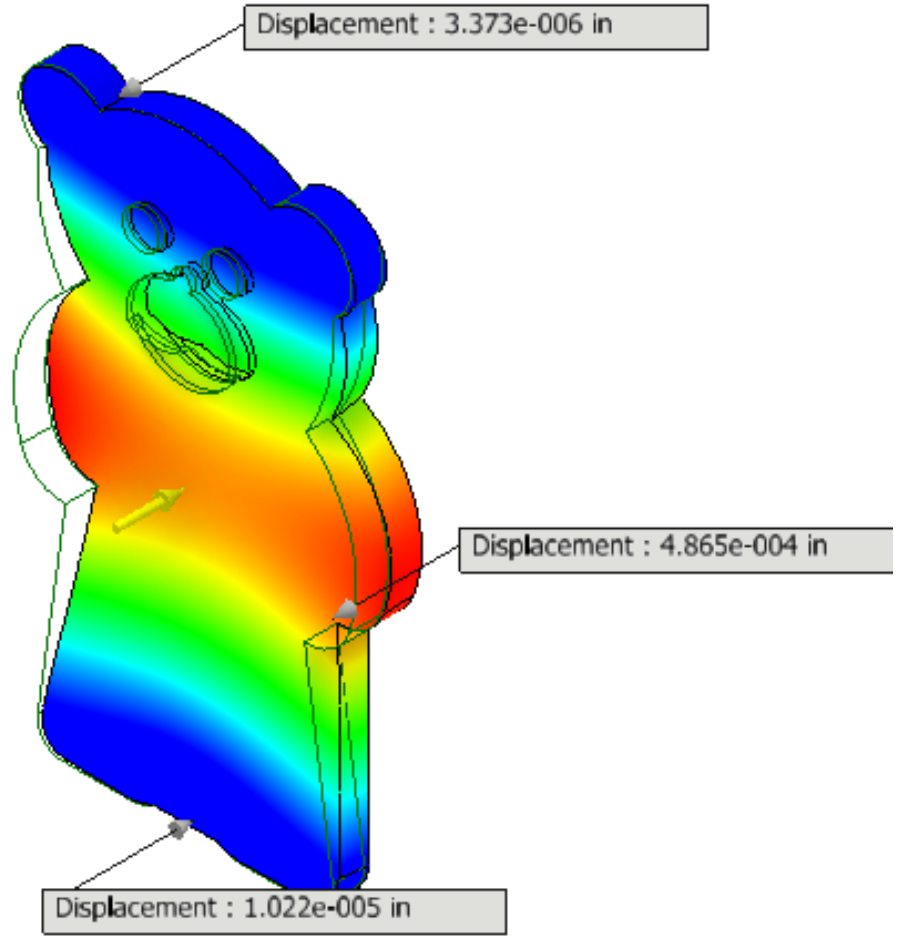
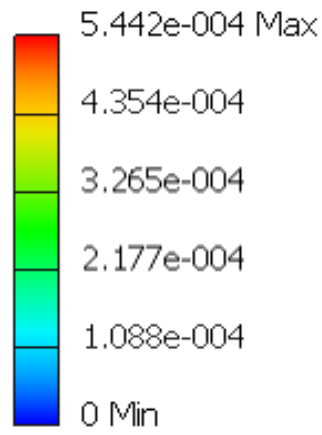
Unit: ksi

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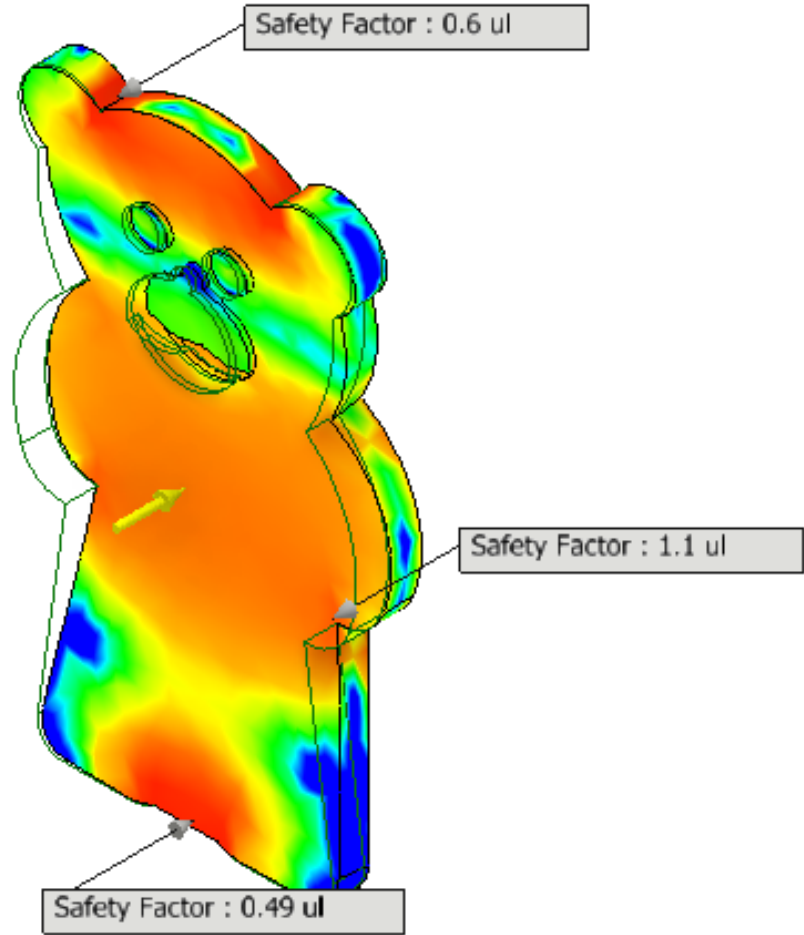
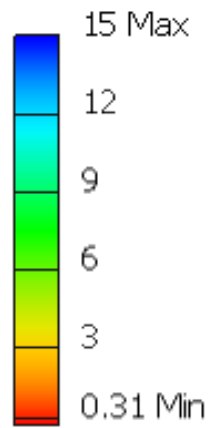
Displacement

Type: Displacement
Unit: in
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Safety Factor

Type: Safety Factor
Unit: ul
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